Backcountry Visitor Use Report

Gates of the Arctic National Park and Preserve

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Don Pendergrast
Outdoor Recreation Planner

Executive Summary

Recreational use levels, patterns, and trends are important in park management decisions and comprehensive planning for the Gates of the Arctic National Park and Preserve. The most reliable data on recreational use come from the years 1997-2000. These data indicate the annual average of recreational visitors in the Park is 1564+/-232. The Noatak River receives the most recreational use. Other popular areas are the Anaktuvuk Pass, Alatna River, Arrigetch Peaks, and North Fork of the Koyukuk River. The John River, Killik River, and Itkillik River areas receive less use. River trips account for roughly 45% of the activity, backpacking approximately 20%, a combination of both is likely 15%. These popular activities account for 70% of the recreational use in Gates of the Arctic National Park and Preserve. Because many of the favored hiking routes follow river corridors, Gates of the Arctic National Park and Preserve should be considered a "river park", perhaps a surprise for a park that is at the heart of the Brooks Range. Visitors average about eleven days on backcountry trips in the Park. Several estimates of group size indicate they average between three and five. On the Kobuk River during hunting season there are at least twice as many people engaged in sport hunting and fishing as there are engaged in subsistence hunting and fishing. Other data sources, old visitor use reports, visitor access reports, backcountry patrol reports, interviews with individuals familiar with past recreational use, and monthly public use reports, support the data gathered from 1997 through 2000. Visitor use data needs to be improved by coordinating and standardizing collection methods and data handling. This document represents our best knowledge of recreation use at this time (March 2001). Additional information will be added to the appendix, as it becomes available.

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Purpose and need

Gates of the Arctic National Park and Preserve (referred to as Gates of the Arctic NP or simply Gates in places) is in the process of Backcountry and Wilderness Planning. Critical to this planning is a good knowledge of recreational use in Gates of the Arctic National Park and Preserve. Recreational use does not include subsistence use, nor will the backcountry wilderness planning effect subsistence uses.

To plan and manage wisely Gates of the Arctic NP must ascertain what current recreational use levels are, what they have been in the past, and identify trends into the future. This report contains the best estimates for current recreational use, compares these levels with past use, identifies trends that can expected in the future, and makes recommendations to improve recreation data collection and management.

Sources of information and their reliability

Voluntary Visitor Registration: 1997-2000

An effort to effectively register visitors into Gates of the Arctic NP backcountry started in 1997. Gates has never had a permit system and the registration is entirely voluntary. The voluntary visitor registration evolved over four years; each year higher compliance rates and more complete data collection are achieved.

Incidental Business Permits: 1981-2000

Commercial operators using the Park are required to file Incidental Business Permits Reports each year. These are available (in some form) from the earliest days of the Park's operation. The information contained in them is not always complete or reliable.

Backcountry Ranger Reports: before Park establishment-2000

Backcountry Ranger Reports exist from days before the Park was created until the present. These are written in a narrative format, which seems to change with the writer. Information in them is difficult to extract. Fortunately two recent efforts have delved into the Backcountry Ranger Reports: a) Dan McRoberts wrote the *Arrigetch Peaks Report* (1999) and reviewed thirty backcountry ranger trips to the Arrigetch Peaks; and b) Katja Mocnik's *Summary of Backcountry Patrol Visitor Data 1997-1999* (1999), reviewed ninety-two trip reports and provided data valuable in estimating overall use.

In the summers of 1993 and 1994 data was collected that helped determine use levels and trends from the Dalton Highway.[1]

[1] Ranger Rick Foster collected data from 1993 that includes the dates 7/1/93 through 7/19/93 and data from 1994 that includes dates from 6/7/94 through 8/17/94. The information deals with backcountry use only. A copy of the raw data is included in the Appendix C.

Kobuk River Hunter Monitoring: 1996-2000

There is a Park Service presence on the Kobuk River in the fall during hunting season. Beginning in 1996 Park personnel contacted recreational hunters in the field and collected information about their experience. Currently the monitoring period covers about three weeks in late August and early September. Reports are available from 1997, 1999, and 2000.

Monthly Public Use Reports: 1982-2000

Since 1982 Monthly Public Use Reports have been submitted. These have little value for backcountry or wilderness planning efforts because the visitor contacts reported are not specific to the backcountry. A person walking into the Coldfoot Visitor Center is not differentiated from one who floats the Noatak River. The reliability of these figures depends on who collects and how they report the data.

Noatak River Visitor Use Study, 1988

A study done in the summer of 1988 by John S. Bevins documented visitor use, identified problems, summarized information and made suggestions form management. This comprehensive report gives excellent information on use and impacts from that period.

Recreational Access Points Report

Recreational Access Points, Gates of the Arctic National Park and Preserve completed in 2001 by Jobe Chakuchin detailed the information known about how recreational users access Gates of the Arctic National Park and Preserve. Each of the primary river drainages or other attractors (e.g. Walker Lake and Arrigetch Creek) are taken in turn, and access by air, foot, boat, and in winter is discussed.

Data reliability

Although Gates of the Arctic NP has data on visitor use for longer than it has existed as a Park, and has recorded some quantitative data since 1982, much of what exists is not useful. Little thought has been given to data management. There are several problems with the past data collection methods:

- Data is collected but not in a systematic fashion with a clear purpose in mind.
- The data sources listed above collect information that is different enough to make comparisons difficult; each data source contains different information.
- Collection has not been standardized across sources.
- Data collection methodology changes over time and with personnel.
- There is no single database to store and query information from different sources.
- Old data is inaccessible due to computer format changes.

Recreational use

What is recreational use?

Recreational use is different from subsistence use. The Alaska National Interest Lands and Conservation Act (1980) specifically allows subsistence use in Gates of the Arctic National Park and Preserve. Subsistence use is specifically omitted from the backcountry and wilderness planning efforts. The planning effort takes into account all recreational uses including but not limited to: sport hunting and fishing, hiking, lake and river floating, mountaineering, photography, camping, sightseeing, mushing, skiing, and similar recreational activities.

Commonly held beliefs are incorrect

Many believe that recreational use in Gates of the Arctic NP falls somewhere between 2000 and 5000 backcountry visitors each year (that is to say people who actually put their feet on the ground inside the Park or Preserve). The most recent visitor use data indicates these estimates are too high, that the range should be between 1300 and 1800 recreational visitors per year. Counts of registered and reported backcountry visitors in 2000 were 996 as reported in *Gates of the Arctic National Park and Preserve Backcountry Recreational Use Summary, Calendar Year 2000* (Semler and Rembe, 2001).[2]

Discussion of methods

Estimates of the total number of visitors in the field were made with data from the 1997-1999 Voluntary Visitor Registration Reports (referred to as Visitor Registration Report) and the 1997-1999 Backcountry Ranger Reports summarized by Mocnik in 1999. Estimates of the numbers of groups and individuals in the field are calculated by dividing the number of groups and individuals in the Visitor Registration Report by the percentage of registered groups and individuals contacted in the field.

The percentages of groups and individuals are based on field contacts of known registration status; they exclude all field contacts with persons of unknown registration status. These calculations excluded the data from hunting on the Kobuk River.

Similarly group size is based on the field contacts of known registration status, excluding groups of unknown registration status. Group sizes are not calculated with Visitor Registration Report data but only on field data (using the registration data yields a larger group size). Either of these methods has shortcomings. Often commercial groups, which tend to be larger, do not register but instead are kept track of with Incidental Business Permit reports. Backcountry Rangers may purposefully not contact commercial trips,

[2] Roger Semler, Chief of Operations, and Suanne Rembe, Visitor Use Assistant, prepared this report combining the Visitor Registration data and Incidental Business Permit information. This figure does not account for visitors that were not included in either data set and should be considered the minimum visitation figure.

thus underreporting group size. The group size of 3.7 as reported in *Gates of the Arctic National Park and Preserve Backcountry Recreational Use Summary, Calendar Year 2000* is probably the best estimate of all.

Noteworthy differences between the results using these methods and estimates and those contained in the *Summary of Backcountry Patrol Visitor Data, 1997-1999* (Mocnik, 1999) are contained in Table 1.

	Visitor Use Report	***Summary of BPVD***
Average Group Size	Based on field observations	Based on VVRR data
Number of Groups and Individuals	Estimates the number of groups and individuals using the numbers from the Visitor Registration Report and the percentages encountered in the field with known registration status	First used the number of groups from the Visitor Registration Report and the percentages of the individuals contacted in the field (including individuals of unknown registration status) to estimate the number of groups. Second estimated the number of individuals in the field by multiplying this estimate of the number of groups by the average group's size (calculated from the Visitor Registration Report data)

Table 1. Comparison of methodology used in this report with that used in *Summary of Backcountry Patrol Visitor Data* (Mocnik, 1999).

There is more room for error in the *Summary* estimates, which include groups and individuals of unknown registration status in the calculations, and uses one set of estimates to calculate other estimates.

In this report recreational use is calculated using visitor days and reported in percentages of total use in order to give an idea of relative overall use. For example use in Arrigetch Peaks is expressed as a percentage of the total use in the backcountry as measured in visitor days. Visitor days are calculated by multiplying the number of people in a group by the number of days their experience lasts. This measurement, combining numbers of people and time, is a logical one for measuring the recreational impacts on the resource. Other valid measurements are numbers of people, or groups, or trips. These measurements are especially useful when dealing with the social impacts of recreational use, the impact that visitors have on each other's recreational experience.

Current recreational use levels

Numbers of visitors with margins of error

The data indicate that with a 95% confidence level for the 1997-1999 seasons there were between 436 and 750 groups and 1332 and 1796 individuals in the Gates of the Arctic

National Park and Preserve as recreational users. This excludes all subsistence use, all NPS presence, and sport hunting/fishing on the Kobuk and Itkillik Rivers.

Backcountry data (excluding Kobuk)	***1997***		***1998***		***1999***	
	Groups	Individuals	Groups	Individuals	Groups	Individuals
Contacts that were registered	11	39	5	21	12	54
Contacts that were not registered	20	66	21	54	32	84
Total contacts of known registration	31	105	26	75	44	138
Contacts of unknown registration	12	14	11	22	3	6
Total contacts	43	119	37	97	47	144
% registered of know registration	35%	37%	19%	28%	27%	39%
% unregistered of known registration	65%	63%	81%	72%	73%	61%
# in Visitor Registration Report	164	596	142	489	158	525
Estimated # in field	462	1605	738	1746	579	1342

Table 2. Visitor use estimate calculations from voluntary Visitor Registration Reports and Backcountry Patrol Reports 1997-1999.

	1997	***1998***	***1999***	***Average***	***95% confidence***
Estimated Individuals	1605	1746	1342	1564	1564+/-232
Estimated Groups	462	738	579	593	593+/-157
Group size from estimates	3.5	2.4	2.3	2.7	2.7+/-.7
Group size from observations	2.8	2.6	3.1	2.8	2.8+/-.3

Table 3. Estimated number of individuals, groups, and group size 1997-1999.

Kobuk River Hunter Monitoring efforts began in 1996. Reports from the years 1997, 1999, and 2000 indicate the average number of subsistence users is 24, while the average number of sport hunters/fishers is 48. The average group size of sport hunters/fishers is three. It appears that while sport hunting and fishing levels are stable that subsistence use is declining. On the Itkillik River there are less than 20 hunters each year.

Data on backcountry use from the Dalton Highway was collected form fifty-four parties between 7/1/93 and 7/19/93 and 6/7/94 and 8/17/94. These data indicate average trip length was seven days, and the group size averaged 2.5, so that the average visitor days per trip was 18.9 (number of visitors times number of days in trip). Assuming these time periods to be typical over one hundred people access Gates backcountry from the Dalton Highway each year.[3]

[3] Data from 1993 and 1994 is included in Appendix C.

Length of stay

The average lengths of stay in the Park from 1997-2000 were: 11.2 (1997); 11.5 (1998); 12.4 (1999); 10.6 (2000). These averages were calculated from Visitor Registration data and are similar to the lengths of stay found in Bevins' 1988 report on the Noatak River.

Areas used for recreation

Data from the Visitor Registration Report, and Incidental Business Permit (IBP) Reports were used to determine what areas in the Park are used for recreational activities. These are best expressed in Charts 1 and 2. The information taken from these two sources of data is corroborated by the information in the *Recreational Access Points: Gates of the Arctic National Park and Preserve* (Chakuchin, 2001). The use levels are expressed in a percentage of total visitor days (numbers of individuals or numbers of trips can be found in Appendix A and B).

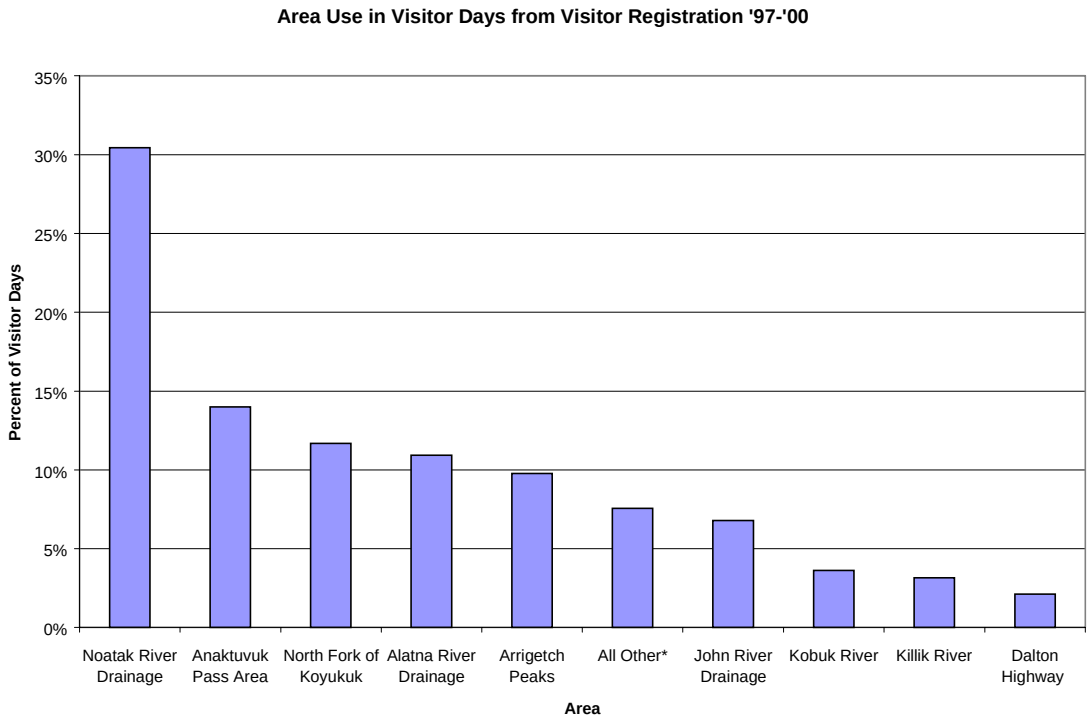

Chart 1. Relative Area Use expressed in visitor days from Visitor Registration Report 1997-2000.

Several things contribute to the slightly different "pictures" we get of visitor use from these two data sets (Visitor Registration and Incidental Business Permits). For example hunters seldom choose to register, so the Kobuk River is underrepresented in the visitor registration data set. Similarly commercial operators do not operate in the Anaktuvuk

Pass area so that area does not show up in Incidental Business Report data. However, commercial air transport makes that area easily accessible to recreational users, and its Ranger Station receives a lot of visitors who register. Backcountry use originating from the Dalton Highway is similarly underrepresented; these users seldom register or use commercial operators.

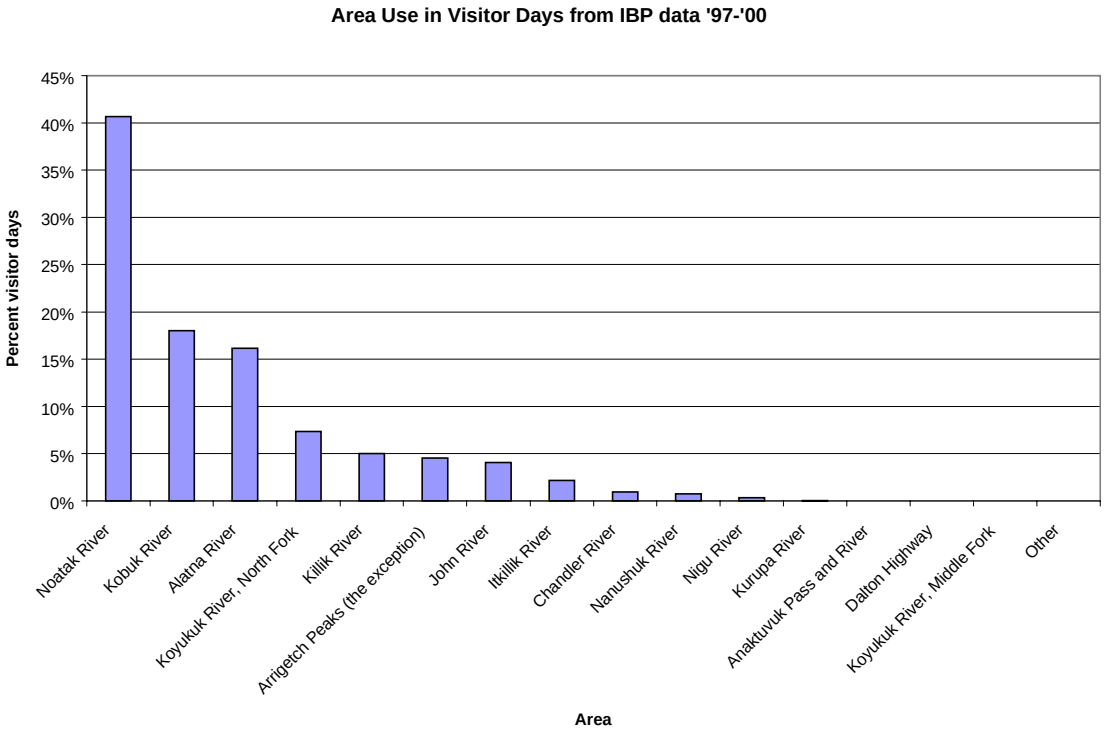

Chart 2. Relative Area Use expressed in visitor days from Incidental Business Reports 1997-2000.

An accurate view of recreational use must take both data sets into account. It is evident that the Noatak River receives the most use. Other high use areas are the Alatna River, Anaktuvuk Pass area, the Arrigetch Peaks, the North Fork of the Koyukuk River, and the Kobuk River. The John River, the Killik River, and the Itkillik River areas receive less use. The remaining areas of the Park see much less or no use at all.

Recreational activities

The same two data sets were used to provide information about specific recreational activities. As with areas used for recreation, the information about each recreational activity is presented as a percentage of the total recreational activities measured in visitor days.

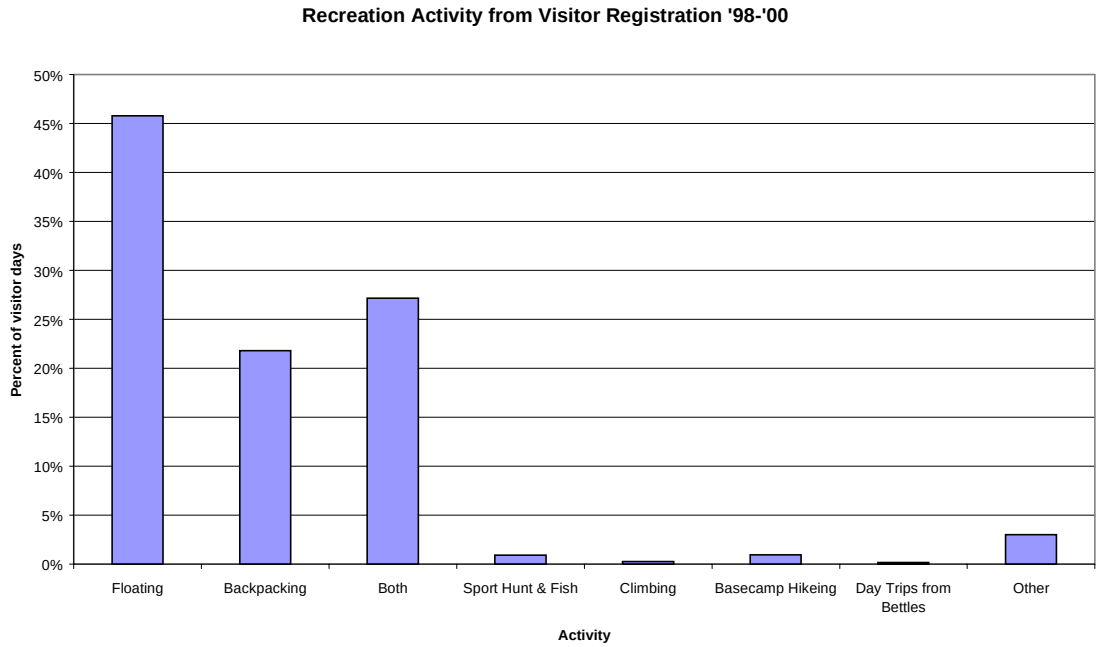

Chart 3. Recreational Activities are expressed as visitor days from Visitor Registration Report 1997-2000.

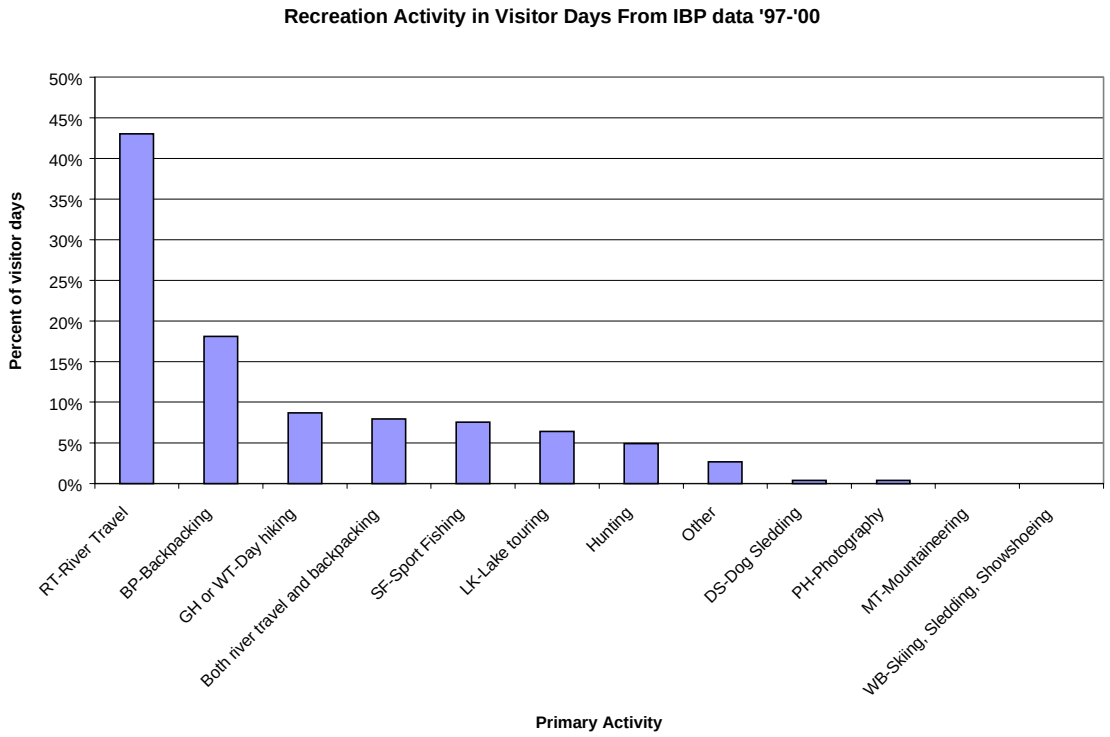

Chart 4. Recreational Activities are expressed in visitor days from Incidental Business Permit Reports.

Float trips are the most popular recreational activity. Backpacking and hiking are slightly less popular, and combining hiking with floating is also popular. Hunting and fishing are

much less popular over all; these activities show up on Incidental Business Permit reports but are very low on Visitor Registration Report data. Although mountaineering and climbing are often considered a popular activity in Gates, the data do not support this assumption.

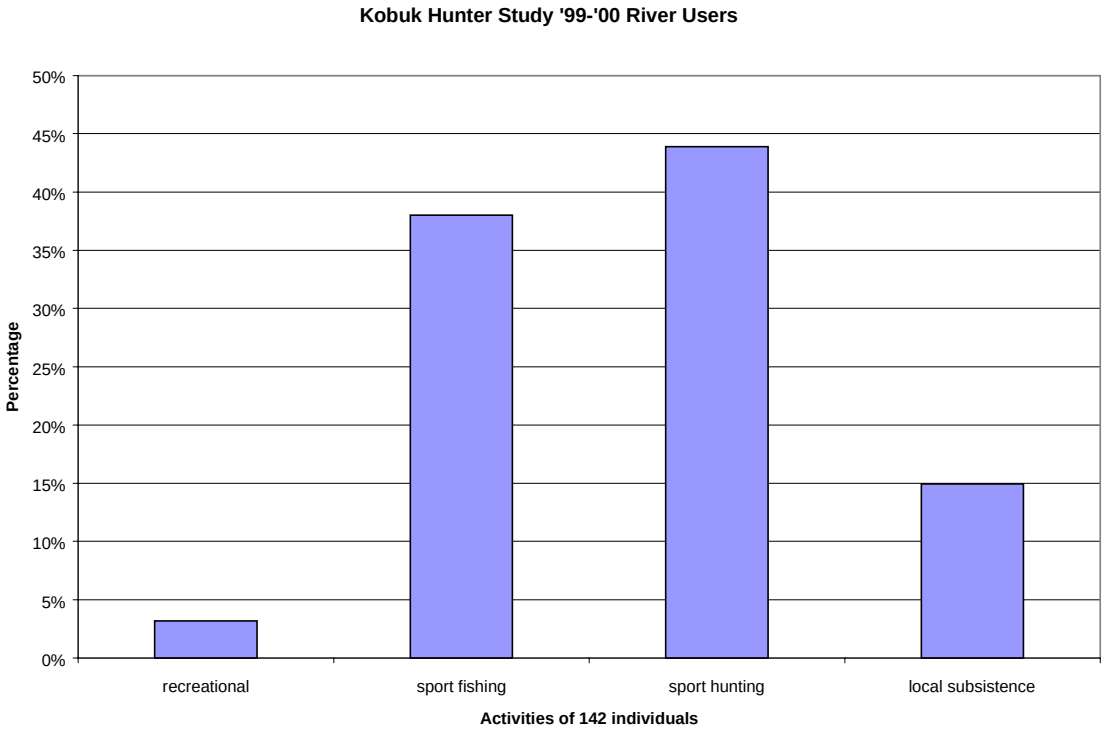

Chart 5. Kobuk River Hunter Monitoring User Groups

On the Kobuk River most sport hunters are also engaged in sport fishing. During 1999-2000 the number of sport hunters/fishers was roughly three times that of subsistence users, and thirteen times that of non-consumptive recreational use during the hunting season. A summary of this data is included in Appendix D.

Trends

The data indicates a stable to slight increase from 1997 through 2000. This may be misleading; the increase might be attributed to the increased effort in collecting data.

Past use levels

Use levels in the past are more difficult to ascertain. Data from visitors was collected at different times in different ways, Incidental Business Permit data is incomplete, and Backcountry Ranger Reports are written in a narrative format. While some old data exists, it is difficult to extract and compile.

Old information kept on computers is difficult to access because changes in hardware and software make it impossible to retrieve backed up data. Gates of the Arctic NP is currently going through twenty years of files by hand in order to collect old visitor use information.[4]

Monthly Visitor Use figures indicate increase

Monthly Visitor Use Reports have been filed since 1982. The information contained in these reports contains all visitor contacts, but does little to distinguish between different types of visitors. Consequently this data is of little use for backcountry and wilderness planning. For these purposes Gates needs information on people who enter the actual Park boundaries.

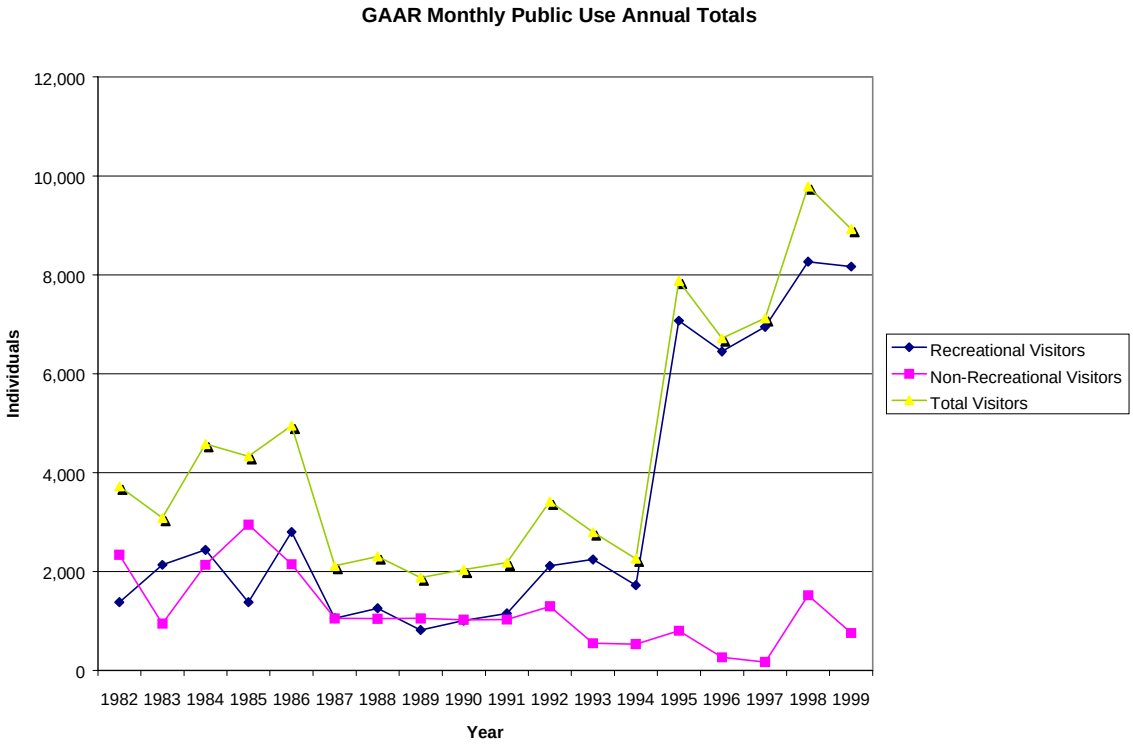

Chart 6. Monthly Visitor Use Report Annual Totals 1982-1999.

It is easy to understand the commonly held idea of Gates of the Arctic NP's backcountry visitation to be about two thousand visitors per year. Between 1982 and 1986 both the reported levels of recreational and non-recreational use were close to two thousand. The reporting methodology changed in 1987 and the total reported visitation stayed around two thousand until an increase in 1992 (possibly coinciding with a boost in tourism for the 50th anniversary of the Alaska Highway). The figures soared in 1995 when the visitation from the interagency Visitor Center at Coldfoot was included.

[4] When this information is compiled it will be added as an appendix to this document.

Noatak River Visitor Use Study

Bevins' report in 1988 gives reliable data about use on the Upper Noatak River. Even thirteen years ago there was concern about the level of use on the Noatak River. "Two of the park staff reported seeing 50 people at one time at a popular drop-off point on the river, and determined that over 100 people were on a 45 to 60 mile stretch of river at once in July 1985 (1988, p4)." Bevins concludes that, "If the river is to be managed to maximize the feeling of solitude and a wilderness experience, the use has now exceeded that level during peak use periods (1988, p65)."

The reliable estimates of numbers of visitors using the headwaters of the Noatak are found in Table 4.

	1981	1982	1983	1984	1985	1986	1987	1988
Guided Visitors	32	57	78	42	107	132	215	
Group Size	8.0	6.3	5.6	5.3	7.1	8.3	9.3	
Total Visitors	179	119	160	234	233	242	249	240

Table 4. Recreation Use on Upper Noatak River from Bevins 1988.

Historic visitor use questionnaire

About twenty people who are familiar with Gates of the Arctic NP over the years were contacted and asked to complete a questionnaire about historic recreational use in the Park and Preserve. Six responded; all but one was a former employee of the Park. A copy of the questionnaire and a synopsis of the responses are included in the Appendix E.

In general the responses corroborated the visitor use estimations contained in this report, which were included in the questionnaire. The responses varied a good deal from each other; that would be expected because the individuals had different perspectives from different time periods.

Several things are apparent. While the amount of recreational use today has not increased a great deal from the "institutional memory" of the 1980s, the use patterns have changed. It appears that float trips, alone or in combination with backpacking, are more popular today than in the past. There has been an increase in trips on the Noatak River with a slight decrease of trips on other rivers like the North Fork of the Koyukuk and the Alatna. Seemingly there has been a shift away from more strenuous activities like backpacking and climbing, to less difficult float trips. Stan Justice of the Alaska Alpine Club believes that after the first ascents of the assorted climbs in the Arrigetch Peaks area fewer climbers were attracted.[5]

[5] Personal communication March 8, 2001

Everyone agreed that winter use has always been very low. Essentially no recreational snow machining existed, although snow machines have been used for subsistence and transportation, especially around Anaktuvuk Pass in Wiseman. Some commercial and private dog mushing has taken place, and the Coldfoot Classic dog sled race did go through the Park.

Limited flightseeing has existed since the late 1980s, originating from Fairbanks, Bettles, and Kotzebue. One respondent noted a dramatic increase during the years 1997 through 1999.

Access has changed little over the years. There was never much use of the landing sites at Bombardment Creek or at Loon Lake; neither is used now.

A brief list of the concerns for Gates of the Arctic National Park and Preserve from the respondents follows:

- Recreational snow machine use.
- Recreational use impact being confined to river corridors.
- Visitors being drawn to the most noted areas rather than being more dispersed.
- Overuse of some areas associated with lake landing sites.
- Flightseeing increase.
- Artifact collecting.

Some suggestions from the respondents were:

- Establishing a permit system for some portions of the Park.
- Manage for lower encounter rates.
- Work with commercial operators on education and resource protection issues.
- Dispersing the use.
- Improve methods for collecting visitor information.

Significant changes

Commercial winter trips to Arrigetch Peaks

There are commercial winter mushing trips into the Arrigetch Peaks area. These began in the winter of 1999-2000. Formerly commercial mushing trips took place on the Koyukuk River or outside the Park. Other winter use is infrequent.

Increased use of the Killik and Nigu drainages

Two great attractions of Alaska are splendid scenery and watchable wildlife. With late summer/early fall aggregations of the Western Arctic Caribou Herd the two are combined in the northwestern portions of the Park. Visitor use of this part of the Park, in the Killik and Nigu River corridors, has increased. Most of the use is in the Killik but the Nigu has also been “discovered”.

Coldfoot Visitor Center on Dalton Highway

Without a doubt the most significant change that effects Gates of the Arctic NP is the Interagency Coldfoot Visitor Center on the Dalton Highway. This is a place that potential visitors can get information about accessing the Park from the Dalton Highway. A new visitor center is due to be completed in 2003 and will attract more visitors. Currently about two thirds of the visitors are independent travelers and one third are guided (on tour buses). This ratio is shifting toward the independent travelers.

While the kind of experience the majority of visitors will be seeking is not likely to be a backcountry trip into Gates some of these independent travelers will make their way into the Park. It is important that cooperating agencies work to present appropriate messages to the visitors because there may be public pressure on the staff to recommend specific hikes or routes into or within Gates. Such recommendations contradict established Park policy and practices. Certainly more recreational users will access the Park from the Dalton Highway with its increased use and improved facilities.

Data collection in the future

Permit system

There will never be highly accurate visitor use data without a mandatory permit system. Such a permit system may or may not be desirable, but one benefit would be better visitor use data.

Standardize the information collected

The first great impediment to good data on visitor use is that the most important sources, the Voluntary Visitor Registration Reports, the Incidental Business Permit Reports, and the Backcountry Ranger Reports do not ask for the same information. They contain similar information that is just different enough to cause confusion. For example different visitor activities (and codes) are used in each report; different ways to calculate time in the backcountry (nights spent, and beginning and ending dates) are utilized; group size may or may not include guides. Standardization of the information collected is necessary if different sources are to be complimentary. Better data coordination is the first step in better results.

Utilize a single integrated system for handling and storing data

The second improvement is handling data sets in one database. Currently a spreadsheet is used to enter and manipulate the data; a database would offer many advantages. Gates has the Backcountry Patrol Report program from Glacier NP (in the database Access) that can be adapted to its own use. It should become the template for Voluntary Visitor Registration and Incidental Business Permit information as well.

At the minimum Gates of the Arctic NP visitor use data from these sources should be integrated, but data integration should not stop there. Both Brooks Range Impact Monitoring information and cultural site lists are kept using the Access database. The ability to merge information from these sources would be greatly enhanced with the adoption of the same database and format.

Prepare easy to use forms that facilitate data entry

One advantage of using a database over a spreadsheet is that a database can be used to create data collection forms that look just like the computer screen used to enter the data. This facilitates data collection and minimized errors in data entry. Forms for Backcountry Rangers, Incidental Business Permit holders, and Visitor Registration could be produced to be more user friendly and increase data entry ease and accuracy.

Write standard procedures and train the data collectors

The best forms, the best database, the best plan, and the best analysis are of no use unless those who actually collect the data can do so in a consistent fashion. It is imperative that simple standard procedures are adopted and data collectors understand them, and how the data will be used.

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Appendix A: Voluntary Visitor Registration Report Data Summary 1997-2000

	1997				1998				1999				2000			
Number of registered trips	162				142				158				186			
Number of registered individuals	594				445				474				653			
	1997				**1998**				**1999**				**2000**			
Travel days	1821				1491				1689				1960			
Visitor days	6867				5136				5879				7008			
Average days/visit	11.6				11.5				12.4				10.7			
	In numbers		In visitor days		In numbers		In visitor days		In numbers		In visitor days		In numbers		In visit	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	
Guided trips					22	15.0%	1035	20.0%	33	21%			71	38.0%		
Activity																
Backpacking					59	41.5%	1607	31.3%	50	32.1%			57	30.4%		
Floating					51	35.9%	2286	44.5%	57	36.5%			83	44.4%		
All (backpacking + floating)					28	19.7%	1118	21.8%	30	19.2%			26	14.0%		
Sport hunting or fishing						0.0%		0.0%		0.0%			5	2.7%		
Climbing						0.0%		0.0%		0.0%			1	0.5%		
Winter						0.0%		0.0%		0.0%			0	0.0%		
Hiking from basecamp						0.0%		0.0%		0.0%			9	4.8%		
Day trips from Bettles						0.0%		0.0%		0.0%			5	2.7%		
Other					4	2.8%	125	2.4%	19	12.2%			1	0.5%		
					142	1	5136	1	156	1	0	0	186	1		0
	In numbers		In visitor days		In numbers		In visitor days		In numbers		In visitor days		In numbers		In visit	
Area	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	
Alatna River Drainage	14	8.6%	537	7.8%	13	9.2%	454	8.8%	16	9.2%	920	13.2%	20	8.1%	1404	
Anaktuvuk Pass Area	33	20.4%	1117	16.3%	43	30.3%	1256	24.5%	21	12.1%	551	7.9%	33	13.4%	747	
Arrigetch Peaks	11	6.8%	466	6.8%	12	8.5%	444	8.6%	19	11.0%	876	12.5%	21	8.5%	1120	
Bettles / Evansville		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	4	1.6%	30	
Chandlar Lake		0.0%	0	0.0%		0.0%		0.0%	1	0.6%	4	0.1%	0	0.0%		
Dalton Highway	5	3.1%	213	3.1%		0.0%		0.0%	12	6.9%	252	3.6%	6	2.4%	173	
Ernie Lake	2	1.2%	15	0.2%	2	1.4%	68	1.3%	3	1.7%	16	0.2%	1	0.4%	28	
Glacier River	0	0.0%		0.0%		0.0%		0.0%	1	0.6%	4	0.1%	0	0.0%	0	
Itkillik River Drainage	1	0.6%	12	0.2%	1	0.7%	45	0.9%	4	2.3%	92	1.3%	1	0.4%	50	
John River Drainage	12	7.4%	422	6.1%	15	10.6%	552	10.7%	7	4.0%	208	3.0%	25	10.1%	740	
Killik River	2	1.2%	90	1.3%	3	2.1%	114	2.2%	9	5.2%	258	3.7%	12	4.9%	548	
Kobuk River	5	3.1%	177	2.6%	6	4.2%	274	5.3%	2	1.2%	64	0.9%	12	4.9%	567	
Kurupa	1	0.6%	24	0.3%		0.0%		0.0%	1	0.6%	24	0.3%	1	0.4%	0	
Middle Fork of Koyukuk	3	1.9%	54	0.8%		0.0%		0.0%	4	2.3%	134	1.9%	0	0.0%	0	
Natat Lake		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	2	0.8%	54	
Nigu River Drainage	1	0.6%	19	0.3%	1	0.7%	63	1.2%	0	0.0%	0	0.0%	2	0.8%	56	
Noatak River Drainage	34	21.0%	2120	30.9%	25	17.6%	1463	28.5%	41	23.7%	2786	39.9%	42	17.0%	2282	
North Fork of Koyukuk	30	18.5%	1378	20.1%	19	13.4%	327	6.4%	24	13.9%	717	10.3%	30	12.1%	1015	
Other	8	4.9%	223	3.2%	2	1.4%	76	1.5%	6	3.5%	64	0.9%	33	13.4%	1194	
Selby / Narvak Lakes		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		
Walker Lake		0.0%		0.0%		0.0%		0.0%	2	1.2%	16	0.2%	2	0.8%	130	
	162	1	6867	1	142	1	5136	1	173	1	6986	1	247	1	10138	

Appendix B: Incidental Business Permit Data Summary, 1997-2000

Totals		IBP Activity	Count	Per Cent		Area	Count	Per Cent	V-days	Per Cent
1944		AT-Air Taxi	193	42.1%		Noatak River	90.05	29.9%	4048	40.7%
2362		RT-River Travel	114	24.9%		Kobuk River	63.3	21.0%	1792	18.0%
170		BP-Backpacking	48	10.5%		Alatna River	31.05	10.3%	1606	16.1%
12343		GH or WT-Day hiking	23	5.0%		Koyukuk River, North Fork	51.25	17.0%	732.5	7.4%
135		Both river travel and backpacking	21	4.6%		Killik River	13.5	4.5%	500	5.0%
		SF-Sport Fishing	20	4.4%		Arrigetch Peaks (the exception)	21.3	7.1%	452.5	4.5%
		LK-Lake touring	17	3.7%		John River	18.55	6.2%	403.2	4.1%
		Hunting	13	2.8%		Itkillik River	5.5	1.8%	213	2.1%
		Other	7	1.5%		Chandler River	3	1.0%	95	1.0%
		DS-Dog Sledding	1	0.2%		Nanushuk River	1	0.3%	74	0.7%
		PH-Photography	1	0.2%		Nigu River	2	0.7%	34	0.3%
		MT-Mountaineering	0	0.0%		Kurupa River	1	0.3%	2	0.0%
		WB-Skiing, Sledding, Showshoeing	0	0.0%		Anaktuvuk Pass and River	0	0.0%	0	0.0%
		Total	**458**	**100.0%**		Dalton Highway	0	0.0%	0	0.0%
						Koyukuk River, Middle Fork	0	0.0%	0	0.0%
						Other	0	0.0%	0	0.0%
						Total	**301.5**	**100.0%**	**9951**	**100.0%**

Appendix C: Dalton Highway Backcountry Data 1993-1994

Date In (estimated)	Date Out (estimated)	Total Days	Start Point	End Point	Number of Individuals	User Days
6/7/94	6/9/94	3	Nolan airstrip	Glacier R	1	3
6/7/94	6/9/94	3	Nolan airstrip	Glacier R	2	6
6/8/94	6/12/94	5	MP231	Loop-Koyuktuvuk	1	5
6/10/94	6/15/94	6	Trembley Cr	Trembly Canyon	2	12
6/19/94	7/5/94	17	Base of Atigun	Loop	2	34
6/22/94	7/5/94	14	Galbraith L	loop	2	28
6/23/94	6/27/94	5	VI Creek	Jenny Lake	2	10
7/4/94	7/18/94	15	Koyuktuvuk Cree	loop	4	60
7/5/94	7/15/94	11	Koyuktuvuk Cree	Anaktuvuk Pass	3	33
7/6/94	7/15/94	10	Nolan airstrip	Anaktuvuk Pass	1	10
7/6/94	7/10/94	5	MP177.6	Summet Lake	2	10
7/6/94	7/13/94	8	Koyuktuvuk Cree	Trembly Canyon	2	16
7/7/94	7/15/94	9	Spike Camp	Loop	2	18
7/10/94	7/17/94	8	Koyuktuvuk Cree	Oolah	2	16
7/16/94	7/19/94	4	Aitgun MP249	Loop	4	16
7/17/94	7/22/94	6	Nolan airstrip	Glacier R	1	6
7/17/94	7/23/94	7	Koyuktuvuk Cree	Oolah	3	21
7/25/94	8/6/94	13	Koyuktuvuk Cree	Anaktuvuk Pass	2	26
7/28/94	8/7/94	11	Nolan airstrip	Glacier R	1	11
7/29/94	8/6/94	9	Koyuktuvuk Cree	Wiseman	4	36
7/30/94	8/7/94	9	MP241	Itkillik Lake	2	18
7/30/94	8/4/94	6	Galbraith L	Loop	2	12
7/31/94	8/9/94	10	Koyuktuvuk Cree	Cockedhat	2	20
8/4/94	8/18/94	15	Big Jim Creek	Loop	6	90
8/5/94	8/8/94	4	mp249	Loop	2	8
8/6/94	8/21/94	16	Big Jim Creek	Loop	5	80
8/6/94	8/15/94	10	Oola Lake	Anaktuvuk Pass	2	20
8/8/94	8/13/94	6	Koyuktuvuk Cree	Oolah	2	12
8/9/94	8/14/94	6	Koyuktuvuk Cree	Oolah	5	30
8/9/94	8/17/94	9	MP241.5	Loop	6	54
8/11/94	8/17/94	7	Trembley Cr	Mt. Doonerak	2	14
8/11/94	8/16/94	6	MP231	Cookedhat	2	12
8/11/94	8/13/94	3	Galbraith L	Loop	2	6
8/11/94	8/15/94	5	Oola Lake	Anaktuvuk Pass	3	15
8/15/94	8/18/94	4	Galbraith L	Loop	5	20
8/15/94	8/17/94	3	Galbraith L	Loop	2	6
8/15/94	8/18/94	4	Koyuktuvuk Creek		3	12
8/16/94	8/18/94	3	VI Creek	Jenny Lake	3	9
8/16/94	8/19/94	4	MP 257	Loop	4	16
8/17/94	8/19/94	3	Galbraith L	Itkamalik River	2	6
7/1/93	7/4/93	4	Koyuktuvuk Cree	Oolah	2	8
7/1/93	7/11/93	11	Nolan Creek		1	11
7/4/93	7/14/93	11	Koyuktuvuk Cree	Anaktuvuk Pass	2	22
7/5/93	7/8/93	4	Nolan airstrip		2	8
7/7/93	7/10/93	4	Hammond River	N.Fork Koyukuk	2	8
7/8/93	7/10/93	3	Nolan Creek		2	6
7/8/93	7/9/93	2	Nolan airstrip	N.Fork Koyukuk	2	4
7/12/93	7/13/93	2	Nolan airstrip		1	2
7/12/93	7/16/93	5	Koyuktuvuk Cree	Loop	2	10
7/13/93	7/15/93	3	Coldfoot	Cookedhat	2	6
7/15/93	7/27/93	13	Koyuktuvuk Cree	Mt. Doonerak	6	78
7/18/93	7/28/93	11	Koyuktuvuk Cree	Cookedhat	1	11
7/19/93	7/21/93	3	Hammond River	Jenny Lake	2	6
7/19/93	7/20/93	2	Nolan airstrip		2	4
	# parties	**54**		**Totals**	**134**	**1021**
	Averages	**7**		**Averages**	**2.48**	**19**

Appendix D: Summary of Kobuk Hunter Monitoring Data by Mike Haubert

			Type of use				Harvest			
year	number of groups	number of individuals	recreational	sport fishing	sport hunting	local subsistence	moose	caribou	black bear	other
1999	28	87	7	52	49	26	9	11	2	
2000	21	55	0	32	48	7	7	12	2	0
Totals	49	142	7	84	97	33	16	23	4	0
Total number of groups	49									
Total number of individuals	142									
recreational	7	3%								
sport fishing	84	38%								
sport hunting	97	44%								
local subsistence	33	15%								
Total	221									
moose	16	37%								
caribou	23	53%								
black bear	4	9%								
other	0	0%								
Total	43									

Appendix E: Historic Visitor Use Questionnaire and Summarized Responses

In January 2001 this questionnaire was sent to approximately twenty individuals with past experience with Gates of the Arctic NP recreational use. Six individuals replied; their responses are summarized after each question.

1. First would you tell us about your relationship with GAAR?

Ed Forner. West District Ranger/Pilot five years.
Judy Alderson. Resource Specialist 1983-1990.
Grant Spearman. Archeologist in area since 1976; lives in Anaktuvuk Pass.
Roger Siglin. Superintendent 1986-1993.
Jon Peterson. District Ranger 1990-1994.
Buster Points. Seasonal OAS Pilot 1987-1999.

2. From your past experience do you believe the following estimates are reasonable? Why or why not?

a. **About 1600 individuals (between 1300 and 1800) are recreational users each year.**

JA thought it was about 1200 in 1990. RS thought it was about 2000. GS thought this was quite high. The rest thought this was about right.

b. About 600 groups (between 450 and 750) groups visit each year.

JA and GS think this is high from their experience.

c. The average group size is about 2.7 (between 2.1 and 3.4).

JA and BP think the group size should be larger 3-4 or 4-6. JP notes that group size depends whether the group is commercial or not, hiking or floating.

3. In your experience what percent of the trips into GAAR do you believe were commercially guided trips (as opposed to the independent traveler)?

A wide range of responses. EF less than 15%, JA 50%, JP 33%, BP 90%.

4. Below are primary recreational activities in GAAR. Do you think the percentages associated with each activity are about right? What would your estimates for previous years be?

Activity	Current use	Your comments
Float trips	40%	EF 70, JA 30, others OK or no comment
Backpacking or hiking	25%	EF 15, JA 25, others OK or no comment
Combined floating and backpacking	15%	EF 10, GS should be higher, others OK or no comment
Sport hunting and/or fishing	10%	OK or no comment
Mountaineering	1%	OK or no comment
All other activities combined	9%	OK or no comment. JP says locals using snowmachines.

5. What do you believe the other recreational activities would be?

EF—Snow-machining, flightseeing, gold panning, wildlife watching. Most people have several activities on a trip.
JA—Base camp hiking, wildlife watching, photography, flightseeing, picnicking.
RS—Flightseeing, rare horseback trips, some mushing.
JP—Photography, birding, survivalist types.
BP—Being close to nature.

6. Below are the main areas of use in GAAR. We use visitor-days as a unit of measurement. Do you think the percentages associated with each area/drainage are about right? What would you estimate the use to be when you were there?

Area	Use in visitor days	Your comments
Noatak River	35%	EF 20, JA 25, BP always popular, others OK or no comment
Alatna River	12%	EF 8, JA 10, others OK or no comment
N. Fork of the Koyukuk R	10%	EF 15-20, JA 17, others OK or no comment
Kobuk River	10%	others OK or no comment
Anaktuvuk Pass Area	10%	JA 5, GS much higher due to local use, others OK or no comment
Arrigetch Peaks	5%	JA 15, others OK or no comment
John River	5%	others OK or no comment
Killik River	4%	JA 2, others OK or no comment
Dalton Highway	4%	EF 8, JA 5, GS higher due to local use, others OK or no comment
All Other	5%	JA 6, others OK or no comment

7. What was your experience with winter recreational use of the Park?

EF—Very low, about 1%.
JA—There was no recreational snow machining, few skiers, mushing (commercial by Sourdough on the N. Fork of Koyukuk, some trappers using snowmachines out of Wiseman for subsistence,
GS—Not much except for local Anaktuvuk Pass residents, occasional dog mushing, rare cross-country skier.
RS—Sourdough Expeditions dog mushing, occasionally some private mushing, the old Coldfoot Classic dog sled race.
JP—Local Anaktuvuk Pass snow machining, mushing out of Wiseman, occasional dog team through Anaktuvuk Pass, Coldfoot Classic.
BP—Wasn't there in winter.

8. Flightseeing is popular in parts of Alaska, what was your experience with flightseeing in GAAR?

EF—Some private use, mainly for hunting rather than fishing or flightseeing.
JA—Frontier Flying Services first started flightseeing out of FAI in late 80s as day trips to AKP. Bettles Lodge had some trips of flightseeing combined with

fishing, photography, or picnicking day trips in planes. Most air traffic was for access. There was a small amount of private plane flight seeing.

GS—Not much.

RS—We did have some concerns about harassment of sheep in the AKP area.

JP—Some flightseeing originating in Kotzebue and flying in via Noatak or Kobuk Rivers. Mail flight from Fairbanks had some flightseeing.

BP—There has been a dramatic increase in the last three years (97-99), most originate in Fairbanks.

9. Sport hunting is important along the Itkillik and Kobuk Rivers. Currently on the Kobuk River there are approximately 55 sport hunters and fishers each year in groups averaging three. Our estimates for the Itkillik are less reliable, but there are probably not more than 20 hunters each year in small parties staying for about a week. How would you describe use levels in the past? Are there any trends?

Most thought these figures had been stable.

JA—Remember seeing 3-5 planes on Kobuk gravel bars during hunting season.

RS—Think there was a period when there was no registered guide for the Kobuk.

JP—NPS pilots refused to land in the spots that Richard Guthrie used for his Cub and passengers.

10. Some access points have changed over time, for example the Super Cub strip at Bombardment Creek washed out, and Loon Lake drained. What were use levels at these places in the past? Are there other changes in access that you are aware of?

JA—Bombardment Strip in the late 80s prior to the washout was never very good and little used. Access to Upper N F Koyukuk was: Summit Lake; Wright's Air (Fairbanks) used to have a Heliocourier that could land above the Gates; Jerry Stansel had a Cub strip right in the Gates that he used. Loon Lake was seldom used. Red Star Lake used to be a very popular drop off point. Tulilik Lake was just beginning to be used as a drop off for the Killik River. Agiak Lake was not used much; it was not a popular route.

GS— Jerry Stansel regularly used Bombardment Creek in the late '70s through mid-'80s. Loon Lake was not used much. Arrigetch Peaks, the Hidden Valley, and Red Star Lake were used much more known and used.

RS—Bombardment was fairly popular both for Doonerak area hikes and float trips. Loon Lake did not get much use.

JP—Guide Richard Guthrie used to pick up clients in AKP or on the Dalton Highway and drop them off at spike camps in the Preserve. Commercial operators work off the Dalton north of the Brooks Range.

BP—Bombardment Creek was used almost exclusively by NPS. Loon Lake was once quite popular but its use has dropped to almost nothing.

11. As you look over these figures and looking back on your experience, are there any surprises? What trends do you see? Do you have concerns? Are there potential management issues we should be aware of?

EF—Recreational snow machine use, while the law allows for village to village use it does not allow unlimited use in the park. Permits should be used to limit over use in some parts of the park. Manage for fewer encounters. Internet could be used to manage a permit system.

JA—Surprised that GAAR has become more a floater park than backpacker park; maybe this trend will switch back when the river corridors become crowded. The conscious management decisions to buy out the lodge, use cabins only as emergency shelters, and not commercial or public use destinations have effected use. River corridors are areas of concern for carrying capacity and impacts. Commercial operators continue to be a big part of the scene and NPS needs to work with them on education and resource protection issues.

GS—I imagine that use is slowly increasing. I'm concerned about visitors drawn to the "best" places by books and articles. This use needs to be spread out to keep numbers in key areas down.

RS—I detest flightseeing and fear it could get out of hand. Tundra landings could become a problem. Some lake access points are overused. Recreational snow mobile use will be a tough issue to deal with.

JP—Artifact collecting by float trips. We had trouble on Easter Creek and the Killik River. There needs to be pan-Brooks Range cooperation (NPS, FWS, BLM, and North Slope) to set guidelines for recreational, especially commercial operations. There is a need for some method of collecting information from visitors for better management and planning.

BP—During the first half of the '90s use increased more than would be desired. However the cost to access the park and probably word of mouth that the park was getting crowded the numbers seem to have leveled off.